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Hallmark Developments (NW) Ltd

Reassessment of noise impact at the Former Dexine
Site, Rochdale, OL12 6AU, with a view to the
discharge of Condition 18

Prepared for :-

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1.0 **SUMMARY**

The original assessment assumed that all units potentially run with relatively high internal noise levels. It suggested that most units could run through the night without any difficulties, but that some of the units closest to the houses to the south might need to have the assumed levels of noise generation curtailed for night time use.

Since then planning consent has been granted with some noise criteria given in Condition 18. Some are exceptionally onerous and we are unsure why they have been set so low. We have remodelled the site to account for the small changes in layout, etc and predicted the noise at the positions identified in the consent. We have presented the predicted levels for the site running at a somewhat extreme worst case levels of activity, then in a reduced way which should meet the propose criteria. However, as we are unsure why some of the criteria are so low, we have also suggested levels of activity that should be entirely acceptable to all parties.

The units are likely to be let to small commercial businesses which create negligible noise and will rarely be open at night, if ever. The risk of any impact at all is likely to be extremely low.



A R Raymond



P J Durell

2.0 INTRODUCTION

ADC was asked to remodel the above site with a view to discharging planning condition 18.

This report begins by discussing the planning condition and alternative interpretations.

After describing the modelling process and assumptions, we discuss basic results and the resulting assessment. The predicted noise is assessed and discussed along with any recommendations.

3.0 PLANNING CONDITIONS

The condition relevant to this assessment is Condition 18. It reads as follows:-

18 Prior to first occupation of any individual plots (Units 9-18 as shown on approved layout H332/021N), and unless otherwise agreed in writing by the Local Planning Authority, a Noise Impact Assessment shall be submitted to and approved in writing by the Local Planning Authority to demonstrate that the following noise parameters will be achieved in respect of any building or from plant and machinery used in connection with any building:

- Point 1, rear of homes 201-211 Spotland Road to the Northern boundary of the site. Between 07:00-23:00 44 dB(A) Leq 15 minute, between 23:00-07:00, 34 dB(A) Leq 5 minute.*
- Point 2, rear of homes 32-42 Primrose Street to the eastern boundary of the site. Between 07:00-23:00, 40 dB(A) leq 15 minute, between 23:00-07:00, 36 dB(A) Leq 5 minute.*
- Point 3, rear of homes 44-54 Primrose Street to the eastern boundary of the site. Between 07:00-23:00, 40 dB(A) Leq 15 minute, between 23:00-07:00, 32 dB(A) Leq 5 minute.*
- Point 4, rear of homes 56-70 Primrose Street to the south eastern boundary of the site. Between 07:00-23:00, 36 dB(A) Leq 15 minute, between 23:00-07:00, 31 dB(A) Leq 5 minute.*

The approved Noise Impact Assessment shall be implemented in full prior to first occupation and the set parameters shall not be exceeded at any time.

Reason: In order to ensure an appropriate level of sound insulation in the interests of residential amenity in accordance with Core Strategy policy DM1 and the National Planning Policy Framework.

In general we cannot identify from where any of the above criteria have been derived. The criteria for positions 1 and 2 are reasonable enough, and the daytime criterion for position 3 is also reasonable enough, although all refer to very short assessment time periods which make them more onerous than current standards. However, the night time criterion at position 3 and the daytime and night time criteria at position 4 are exceptionally onerous.

The night time criteria at positions 3 and 4 are 32 and 31 dB L_{Aeq} respectively. These are very low levels of noise, especially as they only have to be exceeded for 5 minutes in the entire night.

BS 4142 states:-

Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

The Association of Noise Consultants Working Group (“WG” in the extract below) who put together the ANC guidance to BS 4142¹ state:-

BS 4142 does not define ‘low’ in the context of background sound levels nor rating levels. The note to the Scope of the 1997 version of BS 4142 defined very low background sound levels as being less than about 30 dB L_{A90} , and low rating levels as being less than about 35 dB $L_{Ar,Tr}$.

The WG suggest that similar values would not be unreasonable in the context of BS 4142, but that the assessor should make a judgement and justify it where appropriate.

We would suggest, therefore that there is little justification in setting criteria below 35 dB L_{Aeq} in most contexts, and certainly not where the context is established B2 use.

The daytime figure of 36 dB $L_{Aeq,15min}$ is even more surprising and we cannot see how it can be justified. We suspect in fact that it is probably an error.

Overall, we would suggest that criteria of 40 dB L_{Aeq} daytime and 35 dB L_{Aeq} night create negligible impact, particularly as this would be a design aim based on all units running together to contribute to these overall levels. The reality is that some will be far quieter than others, and most are unlikely to run at all at night.

Our main recommendation, therefore, is to discuss the criteria with planners, inviting officers to contact us directly and informally if they wish.

4.0 GUIDE TO MODELLING

We have used our CadnaA modelling software which calculates noise propagation based on the processes of *ISO 9613 : Acoustics – Attenuation of sound during propagation outdoors*. Obviously, modelling software is reliant on the inputs and assumptions. The key ones are:-

4.1 General

1. The ground is mainly reflective (coefficient of 0.11 assumed).

¹ Note Andrew Raymond, author of this report, was part of the WG which prepared the ANC guidance.

2. Calculations are based on two orders of reflections.
3. The site building and the surrounding buildings are assumed to be mainly reflective (0.5 dB loss on reflection assumed).
4. The surrounding trees and vegetation will provide a small degree of absorption but this has been neglected.

4.2 Proposed Industrial Units

1. We do not know what type of uses each unit will be put to but we are advised that the interest shown so far is from small commercial businesses, including small delivery firms, specialist service providers such as repair/refurbishment and distribution type uses. One unit will potentially go to a telecommunications company to house a switchboard type installation which is managed on a once a week visit basis, another is for the storage and lifting equipment hire services.
2. Noise within the industrial units is very pessimistically assumed to be 85 dB L_{Aeq} at worker positions. For an 8 hour day, anything above this would require action to reduce operator exposure and so it should represent a pessimistic assumption, especially given that it is assumed to take place continuously in all units. We have pessimistically estimated that this will be equivalent to a level of 80 dB L_{Aeq} across all internal surfaces of the walls and roofs. Where necessary, some of the modelled scenarios have reduced night time levels. We have assumed that the building envelopes are typical industrial cladding such as Kingspan KS1000 Rw and KS1000 AWP.
3. Source data for potential mechanical equipment is taken from data sheets for Mitsubishi air con and inverter external units, published data is well known and easily accessible. As typical examples, all units have been given a Mitsubishi PUAH-ZRP71VHA and a Mitsubishi PUAH-RP250YKA.

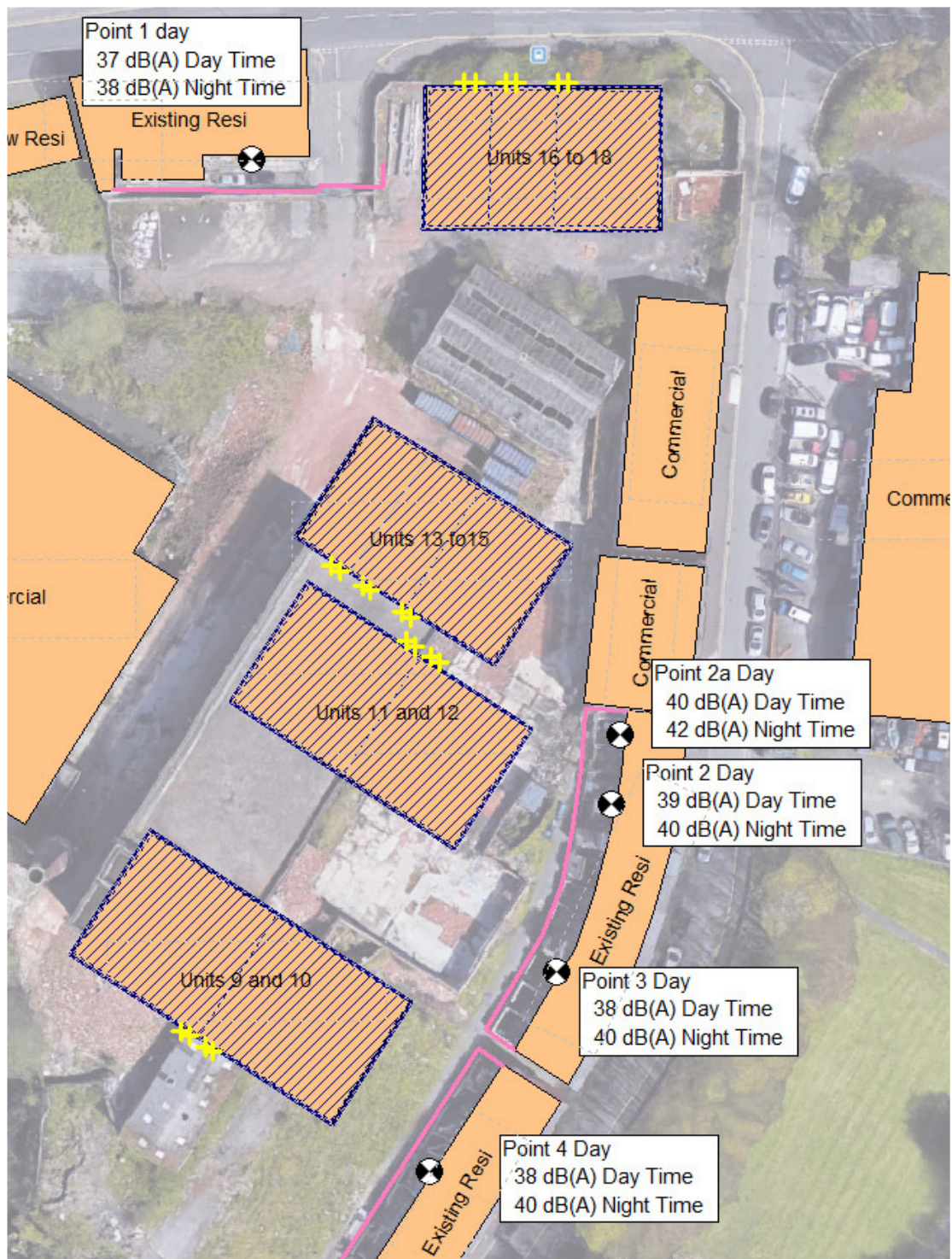
5.0 RESULTS AND DISCUSSIONS

5.1 Basic Impact of Industrial Units

The CadnaA software was used to model the potential impact of the units as described in Section 4.

The model is based on all units running throughout the day, evening and night as described above with no curtailment of the internal activity.

We have reproduced the 4 positions referred to in condition 18, plus an additional position 2a, which is a little more exposed than position 2.



Note that:-

- The beige shapes are surrounding buildings and the application site building in its proposed form.
- The magenta lines are fences.
- The yellow crosses are the mechanical equipment point sources.
- The dark blue hatched areas are the internal noise break out from the roof. The breakout from the walls is shown as the dark blue lines outlining the buildings.
- The harlequined circles are the receiver positions just outside ground floor and first floor windows for daytime and night time respectively.

We can see that the daytime levels meet the criteria of Condition 18 apart from at position 4. As discussed in section 3, the daytime criterion

at position 4 is not reasonable in our view and we would suggest that the predicted level of 38 dB L_{Aeq} would be entirely acceptable.

Note that the night time levels are a little higher simply because they are assumed to impact upstairs rooms, whereas daytime use is assumed to impact ground floor rooms..

5.2 Requirements to Meet Face-Value Planning Criteria

Here we consider what would be required to meet the criteria of condition 18 as they stand. We emphasise again that we do not conder all the criteria to be reasonable but, to meet them as they are, the internal levels will need to be reduced as follows:-

Unit 10: Internal levels will need to be reduced by 2 dB which should have minimal impact on the operations, given that fairly high levels are currently assumed internally. For night time, the levels will need to be reduced by 14 dB. This represents a significant constraint, equivalent to limiting internal levels to around 71 dB L_{Aeq} within the general space and 66 dB L_{Aeq} across all internal surfaces. It may amount to no realistic operation at night.

Units 12 and 15: The currently assumed internal levels are fine for daytime. They will need to be reduced by 9 dB for night time. This represents a constraint but should be feasible given the likely uses. It is, equivalent to limiting internal levels to around 76 dB L_{Aeq} within the general space and 71 dB L_{Aeq} across all internal surfaces.

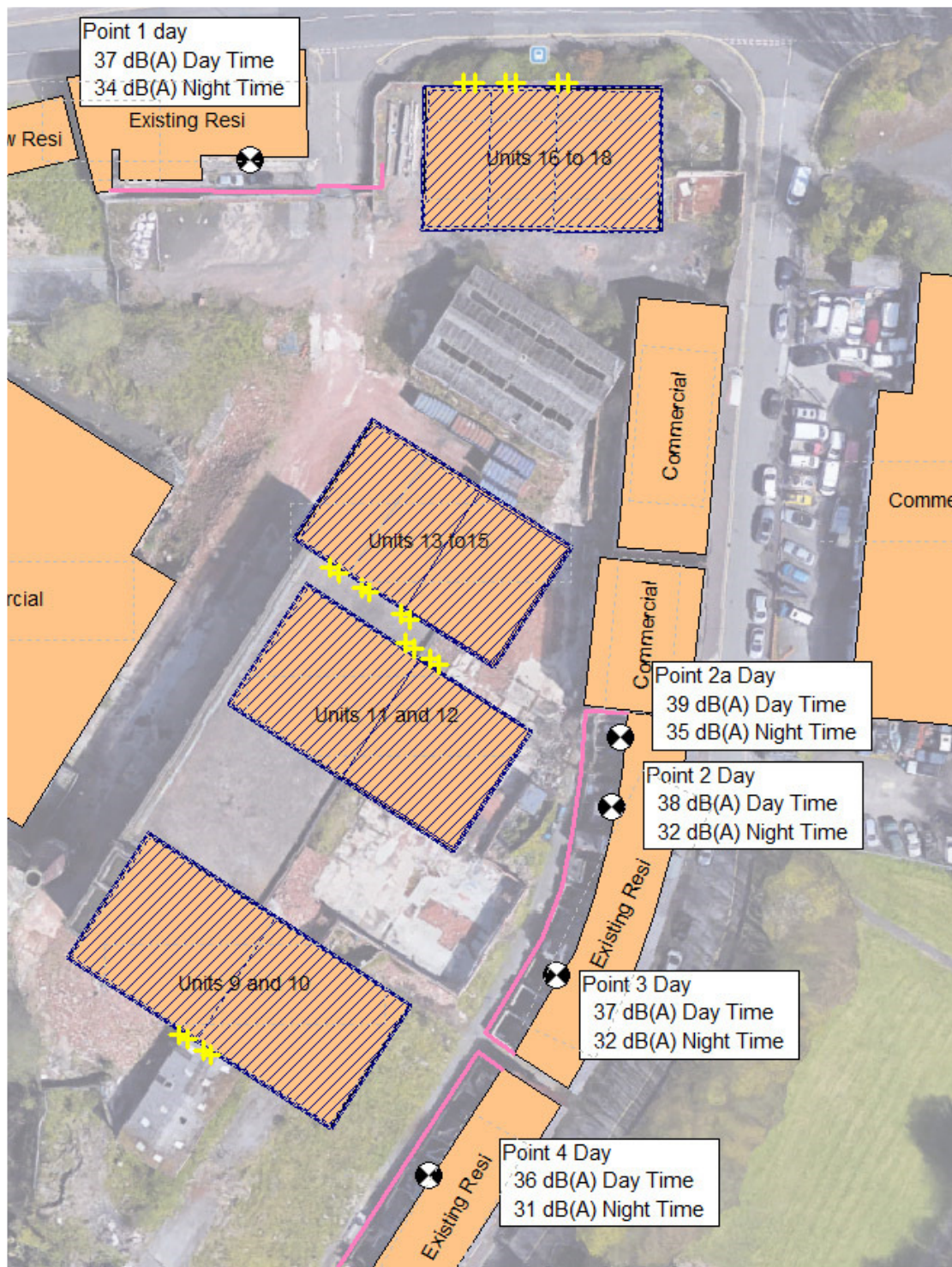
Unit 18: The currently assumed internal levels are fine for daytime. They will need to be reduced by 6 dB for night time. This should have low impact on the operations, given that fairly high levels are currently assumed internally.

Units 9, 11 and 13: The currently assumed internal levels are fine for daytime. They will need to be reduced by 5 dB for night time. This should have low impact on the operations, given that fairly high levels are currently assumed internally.

Units 14, 16 and 17: The currently assumed internal levels are fine for 24 hour operation.

Mechanical equipment: All equipment is assumed to run 24 hours.

The results of the modelling are as follows:-



We can see that all criteria are met, some by a reasonable margin.

5.4 Proposed Solution

As discussed in Section 3, we suggest that it would entirely acceptable to aim for 40 dB L_{Aeq} for daytime and 35 dB L_{Aeq} for night time. To meet these criteria, internal levels will need to be reduced as follows:-

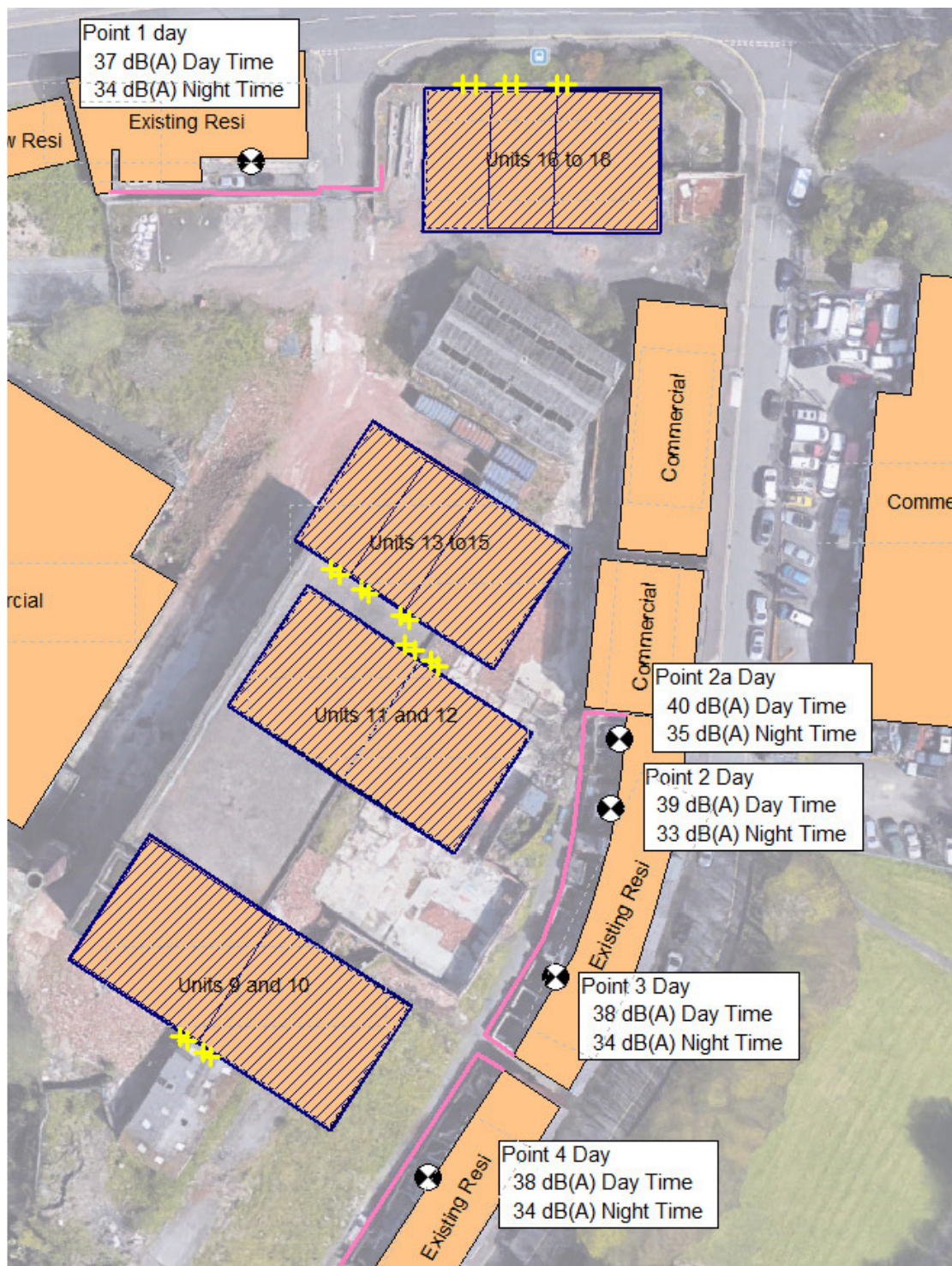
Units 10, 12 and 15: The currently assumed internal levels are fine for daytime. They will need to be reduced by 9 dB for night time. This represents a constraint but should be feasible given the likely uses. It is, equivalent to limiting internal levels to around 76 dB L_{Aeq} within the general space and 71 dB L_{Aeq} across all internal surfaces.

Units 11, 13 and 18: The currently assumed internal levels are fine for daytime. They will need to be reduced by 5 dB for night time. This should have low impact on the operations, given that fairly high levels are currently assumed internally.

Units 9, 14, 16 and 17: The currently assumed internal levels are fine for 24 hour operation.

Mechanical equipment: All equipment is assumed to run 24 hours.

The results of the modelling are as follows:-



We can see that all recommended criteria are met, some by a small margin.

6.0 CONCLUSIONS/RECOMMENDATIONS

Since the original assessment, planning consent has been granted with some noise criteria given in Condition 18. Some are exceptionally onerous and we are unsure why they have been set so low. We have remodelled the site to account for the small changes in layout, etc. and predicted the noise at the positions identified in the consent. We have presented the predicted levels for the site running at a somewhat extreme worst case levels of activity, then in a reduced way which should meet the proposed criteria. However, as we are unsure why some of the criteria are so low, we have also suggested levels of activity that should be entirely acceptable to all parties.

The units are likely to be let to small commercial businesses which create negligible noise and will rarely be open at night, if ever. The risk of any impact at all is likely to be extremely low.

Our main recommendation is that you discuss the criteria of condition 18 with planners and we suggest that 40 dB $L_{Aeq,1hr}$ would be acceptable for daytime and that 35 dB $L_{Aeq,15min}$ would be acceptable at night time. Condition 18 allows for such discussion in the phrase, “*unless otherwise agreed in writing by the Local Planning Authority*”. Either way, it would seem unlikely that the tenants will exceed suggested internal levels. It might be quite awkward to word a tenancy agreement to control such limits but it could be done if necessary.

The mechanical equipment is illustrative only and details of equipment, if any, will not be known until tenants are secured and have done their own specifications. However, they should represent a significant worst case.